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**EDUCATION, SKILLS, & COURSES**

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**University of Illinois at Urbana-Champaign - UIUC, Junior***Graduation: May 2026*

B.S in Aerospace Engineering with a Minor in Computer Science

**Cumulative GPA: 3.8**

- **Skills:** Java, Python, C++, Arduino C++, Siemens NX, Fusion 360, CATIA, SolidWorks, Eagle EDA, Proteus V8, BurnSim, CFD (Beginner), 3D Printing, Soldering, MS Office. (Programming: Intermediate, Design: High Intermediate).
- **Taken/In-Progress:** Incompressible Flow, Mechs of Aerospace Structures, Aero Dynamical Systems, Data Structures, Aero Flight Mechanics, Discrete Structures, Theoretical & Applied Dynamics, Calculus & Linear Algebra, Full Intro CS.
- **By Summer 2025:** Compressible Flow, Applied Aero Structures, Aero Control Systems, Aero Numerical Methods.
- **Elective:** ENG 491 (NanoSat Design Build 1) – Designing a Zero-G Chemical-Electrospray Propellant Dual Feed System.

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**WORK EXPERIENCE & ENGINEERING PROJECTS**

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**Aerospace Engineering Intern – Summer 2024***June, 2024 – August, 2024***Adani Defence & Aerospace, Ahmedabad, India**

- Conducted foundational research and design for short-range missile systems targeting drone countermeasures.
- Analyzed project requirements to create/present a detailed 2-month action plan successfully to go from concept-to-design.
- Conceptualized 3 engineering design variants for senior engineers within 2 weeks to kickstart project development.
- Designed vehicle trajectory by hand and modelled it using python to gain insight on needed propellant calculations.
- Calculated potential propulsive & aerodynamic forces - by hand - on vehicle and optimized structure materials accordingly.
- Created 6 weekly design presentations to verify technical integrity, requirements, & reduce manufacturing time by 20-50%.
- Wrote a final 40-page engineering design report outlining math, references, CAD designs, blueprints, and future steps.

**Aerospace Educational Development & Outreach***April, 2023 – May, 2024***Department of Aerospace Engineering – University of Illinois, Urbana Champaign**

- Worked under the Aerospace Department's NDEP (National Defense Education Program) Department of Defense Grant.
- Taught 15+ STEM teachers & students in rocket science, guiding them through building, flying, and analyzing rockets.
- Built, optimized, and troubleshooted 150+ short range rockets & avionics to collect flight data & analyze trends.
- Identified and implemented course improvements through detailed surveys that improved course structure & effectiveness.

**Head of Technical Projects***January, 2023 – Present***Minorities in Aerospace (MAero) – University of Illinois, Urbana Champaign**

- Planning, advising, and recruiting engineering students for any technical initiative MAero takes on as an organization.
- Leading technical project teams to design/build a High-Altitude Rocket, Sustainable Airplane, and fully 3D-Printed Drone.
- Spearheading brainstorming sessions to create design options, plan budget, and optimize technical parts lists for projects.
- Presenting engineering progress and future goals to potential sponsors and advisors to gain monetary & advisory support.
- Secured \$2,500 of funding from Blue Origin in my first semester & organized a research event with 5+ professors.

**Project Systems Engineer***September, 2023 – November, 2023***Department of Defense S.T.E.M. Vertically Landed Rocket Challenge**

- Built a lander that, under free fall, used a solid rocket motor to reorient and land itself from an altitude of 30m.
- Utilized UIUC's VLR parts resource & online avionics programming library to optimize our model & simulate landings.
- Achieved successful burn and recorded avionics data from an unsuccessful landing to improve design in the future.

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**RESEARCH & WRITING**

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**Researcher & First Author***May, 2023 – April, 2024***Title: Using the Drag Equation and Euler's Method in Python to Predict Model Rocket Flight Trajectories**

- Utilized Rocket Flight Data (24 flights), Motor Thrust Tests, and Python to write algorithm that predicts rocket trajectories.
- Conducted 25+ solid rocket-motor thrust tests to create accurate theoretical thrust curves to plug into python algorithms.
- Designed algorithm structure and wrote python application with a GUI (Graphical User Interface) to take user input, and subsequently output graphs depicting with-drag/without-drag altitude vs time & drag-force vs time for the model rocket.
- Publication awarded 3<sup>rd</sup> place at the AIAA Region III Conference in April, 2024 (<https://doi.org/10.2514/6.2024-84150>).